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BAKER BOTTS L.L.P.
2001 ROSS AVENUE
SUITE 600
DALLAS, TX 75201-2980

EXAMINER	
WU, CHENG CHIEN	

ART UNIT	PAPER NUMBER
2609	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mike.furr@bakerbotts.com
ptomail1@bakerbotts.com

Office Action Summary	Application No.	Applicant(s)	
	10/759,698	RABBAT ET AL.	
	Examiner	Art Unit	
	CHENG-CHIEN WU	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/15/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12-22 are rejected under 35 U.S.C. 101 because the claimed invention is direction to non-statutory subject matter.

Claim 12 is directed to "Logic..encoded in media". The Applicant specification explains "media" may be "software ...or programmed logic devices".

Software alone that is not explicitly contained on a "computer readable medium" may be interpreted simply as a computer program or computer instructions that do not produce a concrete and tangible result.

Regarding claims 13-22, refer to the above rejection of claim 12 because claims 13-22 are dependant claims of 12. Therefore, the supporting rationale of the rejection to claim 12 applies to claims 13-22.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 8, and 9** are rejected under 35 U.S.C 102(e) as being anticipated by **Mukherjee et al.** (Pub # US2004/0111651 A1).

As per claim 1, Mukherjee et al. clearly discloses that a method for provisioning protection paths comprising:

determining network configuration information for a network formed by a plurality of nodes (The WDM network illustrated in FIG. 1 includes nodes 1 through 24, which are coupled together as illustrated by lines, **[0035], page 2);**

identifying a working path from a source node to a destination node spanning one or more intermediate nodes, wherein the source node, the destination node, and the intermediate nodes are all nodes in the network (Also illustrated in FIG. 1 is source node, S, and destination node, D. Node S is coupled to the WDM network through an ingress node 3, while node D coupled to the WDM network through an egress node 21, **[0036], lines 1-3;** As illustrated by solid arrows in FIG. 1, a primary path, including nodes 3, 7, 9, 12, 16, and 21 has been established between ingress node 3 and egress node 21, **[0038], lines 1-3);**

determining a timing constraint for failure recovery (In WDM mesh protection, the failure-recovery time is determined by three main factors, **[0010];** failure detection time, **[0011];** failure notification time, **[0012]**; and restoration time, **[0013]);**

identifying potential nodes in the network that satisfy the timing constraint based on the network configuration information (Next, the system calculates a chain of restorable cycles within the WDM network that guarantee the stated failure-recovery time, **[0054], lines 7-9);**

selecting a protection path from the source node to the destination node spanning a second set of one or more intermediate nodes, the second intermediate nodes selected from the potential nodes (This calculation involves repeatedly selecting a link or series of links for a primary path, and then attempting to find a link or a series of links to form a backup path, which guarantees the stated failure-recovery time. Finally, the system selects a section of each restorable cycle as the primary path between the source and destination, **[0054], lines 9-14)**; and

setting up the protection path (this selected section of the restorable cycle is typically the shortest section of the restorable cycle between the source and destination, **[0054], lines 15-17).**

As per claim 8, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** and in addition, **Mukherjee et al.** further teaches wherein determining the timing constraint comprises receiving a configured value for the working path **(see Fig. 6,** The system starts when the system receives a connection request to connect a source to a destination (step 602). This connection request includes a stated failure-recovery time. Next, the system calculates a chain of restorable cycles within the WDM network that guarantee the stated failure-recovery time (step 604). This calculation involves repeatedly selecting a link or series of links for

a primary path, and then attempting to find a link or a series of links to form a backup path, which guarantees the stated failure-recovery time, **[0054], lines 3-12).**

As per claim 9, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** and in addition, **Mukherjee et al.** further teaches wherein the network has a mesh topology **(see Fig. 1**, in WDM mesh protection, **[0010]),** and wherein each of the nodes in the network comprises an optical network node (One embodiment of the present invention provides a system that guarantees a stated failure-recovery time in an optical wavelength-division multiplexing (WDM) network. The system operates by first receiving a request at an ingress node of the WDM network to establish a connection from a source to a destination through the WDM network, wherein the request includes the stated failure-recovery time**, [0017], lines 1-7).**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 2-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mukherjee et al.** (Pub # US2004/0111651 A1) in view of **Elie-Dit-Consaque et al.** (Pub #US2004/0218525 A1).

As per claim 2, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** and in addition, **Mukherjee et al.** further teaches wherein the network configuration information comprises timing information, wherein the timing information includes data regarding recovery response times for the nodes in the network (This calculation involves repeatedly selecting a link or series of links for a primary path, and then attempting to find a link or a series of links to form a backup path, which guarantees the stated failure-recovery time, **[0054], lines 9-12;** In WDM mesh protection, the failure-recovery time is determined by three main factors, **[0010];** failure detection time, **[0011];** failure notification time, **[0012]**; and restoration time, **[0013]).**

Mukherjee et al., however, does not specifically disclose that the network configuration information comprises topological information wherein the topological information describes the interconnections between the nodes in the network.

In the same field of endeavor, **Elie-Dit-Consaque et al.** discloses that further comprising topological information wherein the topological information describes the

interconnections between the nodes in the network **(FIGS. 5A-5E** illustrate different topological stages of an exemplary network 500 wherein multiple backup paths may be computed in accordance with the teachings of the present invention depending on link disjointedness and/or node disjointedness, **[0032], lines1-5).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the topological information describes the interconnections between the nodes in the network because it may be to maximize the possibility that the network can be restored using this information in the event of a failure.

As per claim 3, the combination of Mukherjee et al. and Elie-Dit-Consaque et al. clearly shows and discloses the claimed invention **as applied to claim 2 above,** and in addition, **Mukherjee et al.** further teaches wherein the timing information indicates propagation delays for control messages passing between the nodes in the network (failure detection time (FDT): the time needed for the nodes around the failure point to detect the failure **[0011], lines 1-3;** failure notification time (FNT): the time needed to notify the source node of the connection that a failure has occurred, **[0012], lines 1-3)** and reconfiguration delays for the nodes in the network to reconfigure in the event of a failure recovery (restoration time (RT): the time needed for dynamic discovery of backup resources **[0014], lines 1-3).**

As per claim 4, the combination of Mukherjee et al. and Elie-Dit-Consaque et al. clearly shows and discloses the claimed invention **as applied to claim 3 above,** and in addition, **Mukherjee et al.** further teaches wherein identifying the potential nodes

that satisfy the timing constraint (attempting to find a link or a series of links to form a backup path, which guarantees the stated failure-recovery time, **[0054], lines 11-12)** comprises identifying selected ones of the nodes in the network that can provide failure recovery within the timing constraint based upon the propagation delays and the reconfiguration delays (Note that the maximum failure-recovery times for the three restorable cycles shown in FIGS. 3-5 are 41.25 ms, 41.5 ms, and 25.5 ms, respectively. These restorable cycles, therefore, can meet a stated failure-recovery time of 41.5 ms or greater, **[0052], lines 1-5; also see [0049] and [0051]).**

7. **Claims 5 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Mukherjee et al.** (Pub # US2004/0111651 A1) in view of **Finn et al.** (US Patent #6728205 B1).

As per claim 5, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** except for further comprising maintaining obligation information specifying a plurality of failure obligations, each failure obligation indicating, with respect to one of the nodes in the network, obligations of other ones of the nodes in the network given a failure of the one node.

In the same field of endeavor, **Finn et al.** discloses that further comprising maintaining obligation information specifying a plurality of failure obligations, each failure obligation indicating, with respect to one of the nodes in the network, obligations of other ones of the nodes in the network given a failure of the one node **(Fig. 14,** Processing begins in decision block 320 where each of the nodes in the network detect

new failures. The node periodically performs those steps necessary to detect failures, **column 40, lines 44-47;** Processing then proceeds to Step 400 where a failure is detected at a node. It should be noted that this step is repeated at all nodes which detect a failure, **column 41, lines 15-17).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include this method because there is a growing trend and reliance on such networks owing to increasing reliance on and use of high-speed communication networks and the requirement that these communication networks be robust in the case of certain failures.

As per claim 10, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** except for further comprising: identifying a fault condition at a reporting one of the nodes in the network; generating a fault message identifying the fault condition; and broadcasting the fault message to all of the nodes in the network.

In the same field of endeavor, **Finn et al.** discloses that further comprising

identifying a fault condition at a reporting one of the nodes in the network **(**It should also be noted that a node does not initially know whether a failure is due to a failure of a link or another node. The particular type of failure (i.e. a link failure or node failure) is determined by the node which detects the failure by information received from other nodes in a so-called reconciliation process, **column 41, lines 17-23)**

generating a fault message identifying the fault condition; and **(Fig. 15A**, If it is determined that the node is an intermediate node, then as shown in step 413 the flag x is set to a first predetermined value (e.g. one) to indicate that the node is an intermediate node on circuit X_k, **column 42, lines 36-39)**

broadcasting the fault message to all of the nodes in the network **(**Processing then flows to Step 415 where the failure message on all operational outbound links on the secondary graph R_m from the node detecting the failure is sent, **column 42, lines 39-42).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include this method because there is a growing trend and reliance on such networks owing to increasing reliance on and use of high-speed communication networks and the requirement that these communication networks be robust in the case of certain failures.

8. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Mukherjee et al.** (Pub # US2004/0111651 A1) in view of **Jaber et al.** (Pub #US20020006112 A1).

As per claim 7, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** except for further wherein determining the timing constraint comprises: identifying a class of service associated with the working path and selecting the timing constraint based upon the class of service.

In the same field of endeavor, **Jaber et al.** discloses that further wherein determining the timing constraint comprises: identifying a class of service associated with the working path (To support voice, video, and other real-time or time-sensitive applications, the transport network 10 may provide class of service (CoS) capabilities. In one embodiment, all IP packets are mapped to one of three priority levels as they enter the transport network 10. In this embodiment, guaranteed traffic has reserved bandwidth and is guaranteed to be transported within a defined time delay. Control flow traffic is also reserved and guaranteed, but the network 10 does not guarantee delivery time delay. Best effort traffic does not have reserved bandwidth and delivery is not guaranteed by the network 10, **[0030], lines 1-11)** and selecting the timing constraint based upon the class of service (By distinguishing and prioritizing traffic based on its type, including CoS, service level agreement (SLA) and/or other suitable indication of importance or delivery constraints. The transport network 10 is able to deliver time-sensitive traffic within tight time constraints by delaying and/or dropping best effort traffic and other low priority traffic, **[0030], lines 11-17).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include this method because this reduces the complexity of network management and preserves the topology of the existing routed network and transport network isolation enables value added services to be provided through the transport network.

9. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Mukherjee et al.** (Pub # US2004/0111651 A1) in view of **Liu** (US Patent #5914798).

As per claim 11, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** and in addition, **Mukherjee et al.** further teaches wherein identifying the potential nodes that satisfy the timing constraint comprises determining selected ones of the nodes in the network that satisfy the timing constraint **([0054], lines 7-9).**

Mukherjee et al., however, does not specifically disclose that selected ones of the nodes based upon a failure reported from any one of the source node, the destination node, and the intermediate nodes.

In the same field of endeavor, **Liu** discloses that that selected ones of the nodes based upon a failure reported from any one of the source node, the destination node, and the intermediate nodes **(see Fig. 2**, Each node in the network (e.g. node 102 of FIG. 2) has the intelligence to identify a failed path, report it to other nodes of the network, and configure an alternate route, **column 1, lines 44-47).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include this method because there is a need for a telecommunications network restoration system employing high-bandwidth optical cross-connect switches enabling rapid switching of an optical network upon service disruption. Such systems must be able to rapidly identify failed optical fiber connections and devise an alternative routing plan using space and wavelength multiplexing to restore the optical network in real time.

10. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Mukherjee et al.** (Pub # US2004/0111651 A1) in view of **Elie-Dit-Consaque et al.** (Pub #US2004/0218525 A1) and in further view of **Finn et al.** (US Patent #6728205 B1).

As per claim 6, Mukherjee et al. clearly shows and discloses the claimed invention **as applied to claim 1 above,** and in addition, **Mukherjee et al.** further teaches wherein wherein identifying the potential nodes in the network that satisfy the timing constraint further comprises identifying the potential nodes in the network that satisfy the timing constraint **([0054], lines 7-9).**

Mukherjee et al., however, does not specifically disclose that the potential nodes based on the network configuration information and the failure obligations.

In the same field of endeavor, **Elie-Dit-Consaque et al.** discloses the potential nodes based on the network configuration information **(FIGS. 5A-5E, [0032], lines1-5).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the potential nodes based on the network configuration information because it may be to maximize the possibility that the network can be restored using this information in the event of a failure.

The combination of Mukherjee et al. and Elie-Dit-Consaque et al. as discussed above shows the limitations claimed, except they do not specifically disclose that the potential nodes based on the failure obligations.

In the same field of endeavor, **Finn et al.** discloses that the potential nodes based on the failure obligations **(see Fig. 14, column 40, lines 44-47; column 41, lines 15-17).**

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to not only use the combination of Mukherjeet et al. and Elie-Dit-Consaque et al. but also include potential nodes based on the failure obligations as taught by Finn et al. because there is a growing trend and reliance on such networks owing to increasing reliance on and use of high-speed communication networks and the requirement that these communication networks be robust in the case of certain failures.

Claim 23 list all the same limitations of claim 1, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 1 applies equally as well to claim 23.

Claim 24 list all the same limitations of claim 2, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 2 applies equally as well to claim 24.

Claim 25 list all the same limitations of claim 3, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 3 applies equally as well to claim 25.

Claim 26 list all the same limitations of claim 4, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 4 applies equally as well to claim 26.

Claim 27 list all the same limitations of claim 5, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 5 applies equally as well to claim 27.

Claim 28 list all the same limitations of claim 6, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 6 applies equally as well to claim 28.

Claim 29 list all the same limitations of claim 7, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 7 applies equally as well to claim 29.

Claim 30 list all the same limitations of claim 8, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 8 applies equally as well to claim 30.

Claim 31 list all the same limitations of claim 9, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 9 applies equally as well to claim 31.

Claim 32 list all the same limitations of claim 10, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 10 applies equally as well to claim 32.

Claim 33 list all the same limitations of claim 11, but in network form rather than method form. Therefore, the supporting rationale of the rejection to claim 11 applies equally as well to claim 33.

11. The prior at made of record and not relied upon is considered pertinent to applicant's disclosure.

De Boer et al. (US Patent #6917759 B2) discloses Shared mesh signaling algorithm and apparatus.

Suemura (Pub #US 2002/0131424 A1) discloses Communication network, path setting method and recording medium having path setting program recorded thereon.

Shiragaki (Pub #US 2002/0162045 A1) discloses Communication device that performs automatic failure recovery and automatic failure recovery method.

Tomizawa et al. (Pub #US2001/0003833 A1) discloses Trunk transmission network.

Boer et al. (Pub #US2003/0021222 A1) discloses Apparatus and method for establishment and protection of connections within mesh networks.

Raguram et al. (Pub #US2003/0140144 A1) discloses Coherent provisioning of multiple traffic paths in transport networks.

Alfakih et al. (Pub #US2004/0190441 A1) discloses Restoration time in mesh networks.

Sinha (US Patent #6904462 B1) discloses Method and system for allocating protection path resources.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHENG-CHIEN WU whose telephone number is (571) 270-1217. The examiner can normally be reached on Monday-Friday 8:00-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHARLES GARBER can be reached on (571) 272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cheng-Chien Wu

Patent Examiner

June 22, 2007

CHARLES D. GARBER
SUPERVISORY PATENT EXAMINER